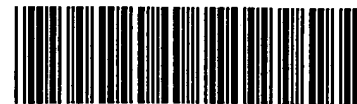


## **RAW SEQUENCE LISTING**

**The Biotechnology Systems Branch of the Scientific and Technical  
Information Center (STIC) no errors detected.**

Application Serial Number: 10/567,980  
Source: IFWP  
Date Processed by STIC: 03/07/2006

# ***ENTERED***



IFWP

## RAW SEQUENCE LISTING

DATE: 03/07/2006

PATENT APPLICATION: US/10/567,980

TIME: 09:41:40

Input Set : E:\Final Sequence list-13477-00002-US.txt

Output Set: N:\CRF4\03072006\J567980.raw

3 <110> APPLICANT: Van Der Vossen, Edwin  
 4 Allefs, Josephus  
 5 Muskens, Marina  
 7 <120> TITLE OF INVENTION: Fungus resistant plants and their uses  
 9 <130> FILE REFERENCE: 13477-00002-US  
 C--> 11 <140> CURRENT APPLICATION NUMBER: US/10/567,980  
 C--> 11 <141> CURRENT FILING DATE: 2006-02-10  
 11 <150> PRIOR APPLICATION NUMBER: PCT/EP2004/008683  
 12 <151> PRIOR FILING DATE: 2004-08-03  
 14 <150> PRIOR APPLICATION NUMBER: EP 03018266.1  
 15 <151> PRIOR FILING DATE: 2003-08-11  
 17 <160> NUMBER OF SEQ ID NOS: 99  
 19 <170> SOFTWARE: PatentIn version 3.3  
 22 <210> SEQ ID NO: 1  
 23 <211> LENGTH: 3804  
 24 <212> TYPE: DNA  
 25 <213> ORGANISM: Solanum bulbocastanum  
 27 <220> FEATURE:  
 28 <221> NAME/KEY: CDS.  
 29 <222> LOCATION: (1)..(3804)  
 32 <400> SEQUENCE: 1  
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 35 1 5 10 15  
 37 ttt tct gct ctt cgc aag gat gct gcc aat gtt ctg gat ttc cta gag 96  
 38 Phe Ser Ala Leu Arg Lys Asp Ala Ala Asn Val Leu Asp Phe Leu Glu  
 39 20 25 30  
 41 aga tta aag aat gaa gaa gat caa aag gct gtt gat gtg gat ctg att 144  
 42 Arg Leu Lys Asn Glu Glu Asp Gln Lys Ala Val Asp Val Asp Leu Ile  
 43 35 40 45  
 45 gaa agc ctg aaa ttg aag ctg aca ttt att tgt aca tat gtc cag ctt 192  
 46 Glu Ser Leu Lys Leu Lys Leu Thr Phe Ile Cys Thr Tyr Val Gln Leu  
 47 50 55 60  
 49 tct tat tcc gat ttg gag aag ttt gaa gat ata atg act aga aaa aga 240  
 50 Ser Tyr Ser Asp Leu Glu Lys Phe Glu Asp Ile Met Thr Arg Lys Arg  
 51 65 70 75 80  
 53 caa gag gtt gag aat ctg ctt caa cca att ttg gat gat gat ggc aaa 288  
 54 Gln Glu Val Glu Asn Leu Leu Gln Pro Ile Leu Asp Asp Asp Gly Lys  
 55 85 90 95  
 57 gac gtc ggg tgt aaa tat gtc ctt act agc ctc gcc ggt aat atg gat 336  
 58 Asp Val Gly Cys Lys Tyr Val Leu Thr Ser Leu Ala Gly Asn Met Asp  
 59 100 105 110  
 61 gac tgt ata agc ttg tat cat cgt tct aaa tca gat gcc acc atg atg 384

CP8-6)

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62	Asp	Cys	Ile	Ser	Leu	Tyr	His	Arg	Ser	Lys	Ser	Asp	Ala	Thr	Met	Met	
63			115					120					125				
65	gat	gag	caa	ttg	ggc	ttc	ctc	ctc	ttg	aat	ctc	tct	cat	cta	tcc	aag	432
66	Asp	Glu	Gln	Leu	Gly	Phe	Leu	Leu	Leu	Asn	Leu	Ser	His	Leu	Ser	Lys	
67			130					135					140				
69	cat	cgt	gct	gaa	aag	atg	ttt	cct	gga	gtg	act	caa	tat	gag	gtt	ctt	480
70	His	Arg	Ala	Glu	Lys	Met	Phe	Pro	Gly	Val	Thr	Gln	Tyr	Glu	Val	Leu	
71	145					150					155					160	
73	cag	aat	gta	tgt	ggc	aac	ata	aga	gat	ttc	cat	gga	ttg	ata	gtg	aat	528
74	Gln	Asn	Val	Cys	Gly	Asn	Ile	Arg	Asp	Phe	His	Gly	Leu	Ile	Val	Asn	
75					165					170					175		
77	tgt	tgc	att	aag	cat	gag	atg	gtt	gag	aat	gtc	tta	tct	ctg	ttt	caa	576
78	Cys	Cys	Ile	Lys	His	Glu	Met	Val	Glu	Asn	Val	Leu	Ser	Leu	Phe	Gln	
79			180							185				190			
81	ctg	atg	gct	gag	aga	gta	gga	cgc	ttc	ctt	tgg	gag	gat	cag	gct	gat	624
82	Leu	Met	Ala	Glu	Arg	Val	Gly	Arg	Phe	Leu	Trp	Glu	Asp	Gln	Ala	Asp	
83			195					200					205				
85	gaa	gac	tct	caa	ctc	tcc	gag	cta	gat	gag	gat	gat	cag	aat	gat	aaa	672
86	Glu	Asp	Ser	Gln	Leu	Ser	Glu	Leu	Asp	Glu	Asp	Asp	Gln	Asn	Asp	Lys	
87			210					215					220				
89	gac	cct	caa	ctc	ttc	aag	cta	gca	cat	cta	ctc	ttg	aag	att	gtt	cca	720
90	Asp	Pro	Gln	Leu	Phe	Lys	Leu	Ala	His	Leu	Leu	Leu	Lys	Ile	Val	Pro	
91	225					230					235				240		
93	act	gaa	ttg	gag	gtt	atg	cac	ata	tgt	tat	aaa	act	ttg	aaa	gct	tca	768
94	Thr	Glu	Leu	Glu	Val	Met	His	Ile	Cys	Tyr	Lys	Thr	Leu	Lys	Ala	Ser	
95					245					250				255			
97	act	tca	aca	gaa	att	gga	cgc	ttc	att	aag	aag	ctc	ctg	gaa	acc	tct	816
98	Thr	Ser	Thr	Glu	Ile	Gly	Arg	Phe	Ile	Lys	Lys	Leu	Leu	Glu	Thr	Ser	
99			260					265					270				
101	ccg	gac	att	ctc	aga	gaa	tat	ctg	att	cat	cta	caa	gag	cat	atg	ata	864
102	Pro	Asp	Ile	Leu	Arg	Glu	Tyr	Leu	Ile	His	Leu	Gln	Glu	His	Met	Ile	
103			275					280					285				
105	act	gtt	att	acc	cct	aac	act	tca	ggg	gct	cga	aac	att	cat	gtc	atg	912
106	Thr	Val	Ile	Thr	Pro	Asn	Thr	Ser	Gly	Ala	Arg	Asn	Ile	His	Val	Met	
107			290					295					300				
109	atg	gaa	ttc	cta	ttg	att	att	ctt	tct	gat	atg	ccg	ccc	aag	gac	ttt	960
110	Met	Glu	Phe	Leu	Leu	Ile	Ile	Leu	Ser	Asp	Met	Pro	Pro	Lys	Asp	Phe	
111	305					310					315				320		
113	att	cat	cat	gac	aaa	ctt	ttt	gat	ctc	ttg	gct	cgt	gtt	gta	gca	ctt	1008
114	Ile	His	His	Asp	Lys	Leu	Phe	Asp	Leu	Leu	Ala	Arg	Val	Val	Ala	Leu	
115					325					330				335			
117	acc	agg	gag	gta	tca	act	ctt	gta	cgc	gac	ttg	gaa	gag	aaa	tta	agg	1056
118	Thr	Arg	Glu	Val	Ser	Thr	Leu	Val	Arg	Asp	Leu	Glu	Glu	Lys	Leu	Arg	
119			340							345				350			
121	att	aaa	gag	agt	act	gac	gaa	aca	aat	tgt	gca	acc	cta	aag	ttt	ctg	1104
122	Ile	Lys	Glu	Ser	Thr	Asp	Glu	Thr	Asn	Cys	Ala	Thr	Leu	Lys	Phe	Leu	
123			355					360					365				
125	gaa	aat	att	gaa	ctc	ctt	aag	gaa	gat	ctc	aaa	cat	gtt	tat	ctg	aaa	1152
126	Glu	Asn	Ile	Glu	Leu	Leu	Lys	Glu	Asp	Leu	Lys	His	Val	Tyr	Leu	Lys	

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129	gtc ccg gat tca tct caa tat tgc ttc ccc atg agt gat gga cct ctc	1200		
130	Val Pro Asp Ser Ser Gln Tyr Cys Phe Pro Met Ser Asp Gly Pro Leu			
131	385 390 395 400			
133	ttc atg cat ctg cta cag aga cac tta gat gat ttg ctg gat tcc aat	1248		
134	Phe Met His Leu Leu Gln Arg His Leu Asp Asp Leu Leu Asp Ser Asn			
135	405 410 415			
137	gct tat tca att gct ttg ata aag gaa caa att ggg ctg gtg aaa gaa	1296		
138	Ala Tyr Ser Ile Ala Leu Ile Lys Glu Gln Ile Gly Leu Val Lys Glu			
139	420 425 430			
141	gac ttg gaa ttc ata aga tct ttt ttc gcg aat att gag caa gga ttg	1344		
142	Asp Leu Glu Phe Ile Arg Ser Phe Phe Ala Asn Ile Glu Gln Gly Leu			
143	435 440 445			
145	tat aaa gat ctc tgg gaa cgt gtt cta gat gtg gca tat gag gca aaa	1392		
146	Tyr Lys Asp Leu Trp Glu Arg Val Leu Asp Val Ala Tyr Glu Ala Lys			
147	450 455 460			
149	gat gtc ata gat tca att att gtt cga gat aat ggt ctc tta cat ctt	1440		
150	Asp Val Ile Asp Ser Ile Ile Val Arg Asp Asn Gly Leu Leu His Leu			
151	465 470 475 480			
153	att ttc tca ctt ccc att acc aga aag aag atg atg ctt atc aaa gaa	1488		
154	Ile Phe Ser Leu Pro Ile Thr Arg Lys Lys Met Met Leu Ile Lys Glu			
155	485 490 495			
157	gag gtc tct gat tta cat gag aac att tcc aag aac aga ggt ctc atc	1536		
158	Glu Val Ser Asp Leu His Glu Asn Ile Ser Lys Asn Arg Gly Leu Ile			
159	500 505 510			
161	gtt gtg aac tct ccc aag aaa cca gtt gag agc aag tca ttg aca act	1584		
162	Val Val Asn Ser Pro Lys Lys Pro Val Glu Ser Lys Ser Leu Thr Thr			
163	515 520 525			
165	gat aaa ata att gta ggt ttt ggt gag gag aca aac ttg ata ctt aga	1632		
166	Asp Lys Ile Ile Val Gly Phe Gly Glu Glu Thr Asn Leu Ile Leu Arg			
167	530 535 540			
169	aag ctc acc agt gga ccg gca gat cta gat gtc att tcg atc att ggt	1680		
170	Lys Leu Thr Ser Gly Pro Ala Asp Leu Asp Val Ile Ser Ile Ile Gly			
171	545 550 555 560			
173	atg ccg ggt tta ggt aaa act act ttg gcg tac aaa gta tac aat gat	1728		
174	Met Pro Gly Leu Gly Lys Thr Thr Leu Ala Tyr Lys Val Tyr Asn Asp			
175	565 570 575			
177	aaa tca gtt tct agc cat ttc gac ctt cgt gca tgg tgc acg gtc gac	1776		
178	Lys Ser Val Ser Ser His Phe Asp Leu Arg Ala Trp Cys Thr Val Asp			
179	580 585 590			
181	caa gta tat gac gag aag aag ttg ttg gat aaa att ttc aat caa gtt	1824		
182	Gln Val Tyr Asp Glu Lys Lys Leu Leu Asp Lys Ile Phe Asn Gln Val			
183	595 600 605			
185	agt gac tca aat tca aaa ttg agt gag aat att gat gtt gct gat aaa	1872		
186	Ser Asp Ser Asn Ser Lys Leu Ser Glu Asn Ile Asp Val Ala Asp Lys			
187	610 615 620			
189	cta cgg aaa caa ttg ttt gga aag agg tat ctt att gtc tta gat gac	1920		
190	Leu Arg Lys Gln Leu Phe Gly Lys Arg Tyr Leu Ile Val Leu Asp Asp			
191	625 630 635 640			

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194	Val	Trp	Asp	Thr	Asn	Thr	Trp	Asp	Glu	Leu	Thr	Arg	Pro	Phe	Pro	Asp	
195					645					650					655		
197	ggt	atg	aaa	gga	agt	aga	att	att	ttg	aca	act	cga	gaa	aag	aaa	gtt	2016
198	Gly	Met	Lys	Gly	Ser	Arg	Ile	Ile	Leu	Thr	Thr	Arg	Glu	Lys	Lys	Val	
199				660					665						670		
201	gct	ttg	cat	gga	aag	ctc	tac	act	gat	cct	ctt	aac	ctt	cga	ttg	cta	2064
202	Ala	Leu	His	Gly	Lys	Leu	Tyr	Thr	Asp	Pro	Leu	Asn	Leu	Arg	Leu	Leu	
203				675					680						685		
205	aga	tca	gaa	gaa	agt	tgg	gag	tta	tta	gag	aaa	agg	gca	ttt	gga	aac	2112
206	Arg	Ser	Glu	Glu	Ser	Trp	Glu	Leu	Leu	Glu	Lys	Arg	Ala	Phe	Gly	Asn	
207		690					695					700					
209	gag	agt	tgc	cct	gat	gaa	cta	ttg	gat	gtt	ggt	aaa	gaa	ata	gcc	gaa	2160
210	Glu	Ser	Cys	Pro	Asp	Glu	Leu	Leu	Asp	Val	Gly	Lys	Glu	Ile	Ala	Glu	
211	705					710					715					720	
213	aat	tgt	aaa	ggg	ctt	cct	ttg	gtg	gtg	gat	ctg	att	gct	gga	atc	att	2208
214	Asn	Cys	Lys	Gly	Leu	Pro	Leu	Val	Val	Asp	Leu	Ile	Ala	Gly	Ile	Ile	
215				725						730					735		
217	gct	ggg	agg	gaa	aag	aaa	aag	agt	gtg	tgg	ctt	gaa	gtt	gta	aat	aat	2256
218	Ala	Gly	Arg	Glu	Lys	Lys	Lys	Ser	Val	Trp	Leu	Glu	Val	Val	Asn	Asn	
219				740					745						750		
221	ttg	cat	tcc	ttt	att	ttg	aag	aat	gaa	gtg	gaa	gtg	atg	aaa	gtt	ata	2304
222	Leu	His	Ser	Phe	Ile	Leu	Lys	Asn	Glu	Val	Glu	Val	Met	Lys	Val	Ile	
223				755					760						765		
225	gaa	ata	agt	tat	gac	cac	tta	cct	gat	cac	ctg	aag	cca	tgc	ttg	ctg	2352
226	Glu	Ile	Ser	Tyr	Asp	His	Leu	Pro	Asp	His	Leu	Lys	Pro	Cys	Leu	Leu	
227		770					775					780					
229	tac	ttt	gca	agt	gcg	ccg	aag	gac	tgg	gta	acg	aca	atc	cat	gag	ttg	2400
230	Tyr	Phe	Ala	Ser	Ala	Pro	Lys	Asp	Trp	Val	Thr	Thr	Ile	His	Glu	Leu	
231	785					790					795					800	
233	aaa	ctt	att	tgg	ggt	ttt	gaa	gga	ttt	gtg	gaa	aag	aca	gat	atg	aag	2448
234	Lys	Leu	Ile	Trp	Gly	Phe	Glu	Gly	Phe	Val	Glu	Lys	Thr	Asp	Met	Lys	
235				805						810					815		
237	agt	ctg	gaa	gaa	gtg	gtg	aaa	att	tat	ttg	gat	gat	tta	att	tcc	agt	2496
238	Ser	Leu	Glu	Glu	Val	Val	Lys	Ile	Tyr	Leu	Asp	Asp	Leu	Ile	Ser	Ser	
239				820					825						830		
241	agc	ttg	gta	att	tgt	ttc	aat	gag	ata	ggt	gat	tac	cct	act	tgc	caa	2544
242	Ser	Leu	Val	Ile	Cys	Phe	Asn	Glu	Ile	Gly	Asp	Tyr	Pro	Thr	Cys	Gln	
243				835					840						845		
245	ctt	cat	gat	ctt	gtg	cat	gac	ttt	tgt	ttg	ata	aaa	gca	aga	aag	gaa	2592
246	Leu	His	Asp	Leu	Val	His	Asp	Phe	Cys	Leu	Ile	Lys	Ala	Arg	Lys	Glu	
247		850					855								860		
249	aag	ttg	tgt	gat	cgg	ata	agt	tca	agt	gct	cca	tca	gat	ttg	ttg	cca	2640
250	Lys	Leu	Cys	Asp	Arg	Ile	Ser	Ser	Ser	Ala	Pro	Ser	Asp	Leu	Leu	Pro	
251	865					870					875					880	
253	cgt	caa	att	agc	att	gat	tat	gat	gat	gat	gaa	gag	cac	ttt	ggg	ctt	2688
254	Arg	Gln	Ile	Ser	Ile	Asp	Tyr	Asp	Asp	Asp	Glu	Glu	His	Phe	Gly	Leu	
255				885						890						895	
257	aat	ttt	gtc	ctg	ttc	ggt	tca	aat	aag	aaa	agg	cat	tcc	ggt	aaa	cac	2736

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258 Asn Phe Val Leu Phe Gly Ser Asn Lys Lys Arg His Ser Gly Lys His
259          900          905          910
261 ctc tat tct ttg acc ata aat gga gat gag ctg gac gac cat ctt tct      2784
262 Leu Tyr Ser Leu Thr Ile Asn Gly Asp Glu Leu Asp Asp His Leu Ser
263          915          920          925
265 gat aca ttt cat cta aga cac ttg agg ctt ctt aga acc ttg cac ctg      2832
266 Asp Thr Phe His Leu Arg His Leu Arg Leu Leu Arg Thr Leu His Leu
267          930          935          940
269 gaa tcc tct ttt atc atg gtt aaa gat tct ttg ctg aat gaa ata tgc      2880
270 Glu Ser Ser Phe Ile Met Val Lys Asp Ser Leu Leu Asn Glu Ile Cys
271 945          950          955          960
273 atg ttg aat cat ttg agg tac tta agc att ggg aca gaa gtt aaa tct      2928
274 Met Leu Asn His Leu Arg Tyr Leu Ser Ile Gly Thr Glu Val Lys Ser
275          965          970          975
277 ctg cct ttg tct ttc tca aac ctc tgg aat cta gaa atc ttg ttt gtg      2976
278 Leu Pro Leu Ser Phe Ser Asn Leu Trp Asn Leu Glu Ile Leu Phe Val
279          980          985          990
281 gat aac aaa gaa tca acc ttg ata cta tta ccg aga att tgg gat ctt      3024
282 Asp Asn Lys Glu Ser Thr Leu Ile Leu Leu Pro Arg Ile Trp Asp Leu
283          995          1000          1005
285 gta aag ttg caa gtg ctg ttc acg act gct tgt tct ttc ttt gat      3069
286 Val Lys Leu Gln Val Leu Phe Thr Thr Ala Cys Ser Phe Phe Asp
287          1010          1015          1020
289 atg gat gca gat gaa tca ata ctg ata gca gag gac aca aag tta      3114
290 Met Asp Ala Asp Glu Ser Ile Leu Ile Ala Glu Asp Thr Lys Leu
291          1025          1030          1035
293 gag aac ttg aca gca tta ggg gaa ctc gtg ctt tcc tat tgg aaa      3159
294 Glu Asn Leu Thr Ala Leu Gly Glu Leu Val Leu Ser Tyr Trp Lys
295          1040          1045          1050
297 gat aca gag gat att ttc aaa agg ctt ccc aat ctt caa gtg ctt      3204
298 Asp Thr Glu Asp Ile Phe Lys Arg Leu Pro Asn Leu Gln Val Leu
299          1055          1060          1065
301 cat ttc aaa ctc aag gag tca tgg gat tat tca aca gag caa tat      3249
302 His Phe Lys Leu Lys Glu Ser Trp Asp Tyr Ser Thr Glu Gln Tyr
303          1070          1075          1080
305 tgg ttc ccg aaa ttg gat ttc cta act gaa cta gaa aaa ctc act      3294
306 Trp Phe Pro Lys Leu Asp Phe Leu Thr Glu Leu Glu Lys Leu Thr
307          1085          1090          1095
309 gta gat ttt gaa aga tca aac aca aat gac agt ggg tcc tct gca      3339
310 Val Asp Phe Glu Arg Ser Asn Thr Asn Asp Ser Gly Ser Ser Ala
311          1100          1105          1110
313 gcc ata aat cgg cca tgg gat ttt cac ttt cct tcg agt ttg aaa      3384
314 Ala Ile Asn Arg Pro Trp Asp Phe His Phe Pro Ser Ser Leu Lys
315          1115          1120          1125
317 aga ttg caa ttg cat gaa ttt cct ctg aca tcc gat tca cta tca      3429
318 Arg Leu Gln Leu His Glu Phe Pro Leu Thr Ser Asp Ser Leu Ser
319          1130          1135          1140
321 aca ata gcg aga ctg ctg aac ctt gaa gag ttg tac ctt tat cgt      3474
322 Thr Ile Ala Arg Leu Leu Asn Leu Glu Glu Leu Tyr Leu Tyr Arg

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RAW SEQUENCE LISTING ERROR SUMMARY  
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Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:7; Xaa Pos. 178  
Seq#:8; Xaa Pos. 178  
Seq#:77; N Pos. 1,10

**VERIFICATION SUMMARY**

PATENT APPLICATION: US/10/567,980

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Input Set : E:\Final Sequence list-13477-00002-US.txt

Output Set: N:\CRF4\03072006\J567980.raw

L:11 M:270 C: Current Application Number differs, Replaced Current Application No

L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date

L:1887 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7 after pos.:576

L:2219 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8 after pos.:176

L:4114 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:77 after pos.:0